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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/588,135

07/31/2006

Young-Nam Kim

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EXAMINER

SCHLENTZ, NATHAN W

ART UNIT

PAPER NUMBER

1616

MAIL DATE

DELIVERY MODE

06/10/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/588,135

Applicant(s)

KIM, YOUNG-NAM

Examiner

Nathan W. Schlientz

Art Unit

1616

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 31-39, 41 and 42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31-39, 41 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S5108)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

The examiner for your application in the USPTO has changed. Examiner Nathan Schlientz can be reached at 571-272-9924.

Status of Claims

Claims 31-39, 41 and 42 are pending in the present application and are examined herein on the merits for patentability.

Claim Objections

1. Claims 35 and 36 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 35, which is dependent from claim 31, states that "said silver powder has paramagnetism in an external magnetic field, H, of 2,000 Oe or greater". However, claim 31 states that "said silver powder has a positive mass magnetization (i.e., paramagnetism) in an external magnetic field, H, of 4,000 Oe or greater". Therefore, claim 31 requires an external magnetic field of 4,000 Oe or greater, whereas claim 35 requires the broader external magnetic field of 2,000 Oe or greater. Similarly, claim 36 requires the exact same external magnetic field without further limiting claim 31.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 31-39, 41 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Carotenuto, et al. (Journal of Materials Science Letters, 2000)

Carotenuto et al. disclose electrical and magnetic properties of a polymer-metal composite (silver/polyethylene, Ag/HD-PE), have been investigated down to 4.2 K (pg. 425, left column, ln. 17-19). The observed transition in the magnetic susceptibility at $T < 130$ K is further evidence of the magnetic role played by Ag particles with respect to the slightly paramagnetic polymeric matrix. The effect can be related to a convenient metal filler concentration range which enhances the short-range interaction between the magnetic moments of the disorder-induced paramagnetic states arising from Ag-particles with unpaired spins. This feature, previously observed in nano-sized metal filled composites [4], is now investigated also in micro-sized samples opening a potential development of new easy-to-process magnetic composite materials. See pg. 425, left column.

Carotenuto et al. further disclose susceptibility vs. temperature experimental data for two Ag/HD-PE samples with different silver contents resulting in a slight paramagnetic behavior down to ~ 130 K (pg. 426, left column, 2nd paragraph). When the Ag particle size within a polymeric matrix becomes very small, the diamagnetic

properties of the bulk metal can be strongly influenced. In particular, if the metal is reduced to a nano-sized powder finely dispersed into a non-magnetic matrix, with no agglomeration, the resulting material shows paramagnetic properties. The change of magnetic properties in Ag is due to the probability for the fine particles to result in a net unpaired spin due to an odd number of electrons. Such a phenomenon has been previously observed only in nano-composite systems, because in that case the number of particles per weight unit is extremely high, and therefore a large number of particles with unpaired spins are present. See pg. 426, left column, last paragraph). The magnetic susceptibility of a material containing nano-sized silver particles exhibits a significant cusp at a temperature which is rather sharply defined, suggesting a second order phase transition from a superparamagnetic state to a paramagnetic local spontaneous magnetization (pg. 426, right column, 1st paragraph).

Regarding the claimed positive mass magnetization, coercive force, saturated magnetic moment, slope of the mass magnetization curve, and the inclination of the mass magnetization, the Office does not have the facilities for examining and comparing applicant's product with the product of the prior art in order to establish that the product of the prior art does not possess the same functional characteristics of the claimed product. The claimed properties are descriptive and thus would be an inherent property of the claimed composition. In the absence of evidence to the contrary, the burden is upon the applicant to prove that the claimed products are functionally different than those taught by the prior art and to establish patentable differences. See *Ex parte Phillips*, 28 U.S.P.Q.2d 1302, 1303 (PTO Bd. Pat. App. & Int. 1993), *Ex parte Gray*, 10

USPQ2d 1922, 1923 (PTO Bd. Pat. App. & Int.) and *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Schlientz whose telephone number is 571-272-9924. The examiner can normally be reached on 8:30 AM to 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NWS

/John Pak/
Primary Examiner, Art Unit 1616